Key Stage 3  
*National Strategy*

*Numeracy across the curriculum  
objectives*

*Applicable to Physical Education*

| Numeracy across the curriculum | Start of Year 7 | Year 7 | Year 8 | Year 9 (including *extension objectives*) |
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| Have a sense of the size of a number and where it fits into the number system | Place value, ordering and rounding  1. Recognise and extend number sequences. |  |  |  |
| Recall mathematical facts confidentlyCalculate accurately and efficiently, both mentally and with pencil and paper, drawing on a range of calculation strategies | Calculations with whole numbers and decimals  1. Understand and use the relationships between the four operations, and the principles of the arithmetic laws. |  |  |  |
| Calculate using fractions, decimals and percentages and use proportional reasoning to simplify and solve problems | Fractions, decimals, percentages, ratio and proportion  1. Understand percentage as the number of parts in every 100. 2. Find simple percentages of small whole-number quantities. | Fractions, decimals, percentages, ratio and proportion  1. Calculate simple percentages and fractions of quantities. 2. Solve simple problems about ratio and proportion using informal strategies. | Fractions, decimals, percentages, ratio and proportion  1. Calculate percentages and find the outcome of a given percentage increase or decrease. | Fractions, decimals, percentages, ratio and proportion  1. Compare two ratios; interpret and use ratio in a range of contexts. 2. Use proportional reasoning to solve a problem, choosing the correct numbers to take as 100%, or as a whole. |
| Measure and estimate measurements, choosing suitable units and reading numbers correctly from a range of meters, dials and scales | Measures  1. Use, read and write standard metric units. 2. Convert smaller to larger units, and vice versa. 3. Know rough equivalents between common metric and imperial units. 4. Record estimates and readings from scales to a suitable degree of accuracy. | Measures and mensuration  1. Measure, estimate, calculate and solve problems involving length, area, mass, capacity and angle. 2. Read and interpret scales on a range of measuring instruments. | Measures and mensuration  1. Know rough metric equivalents of imperial measures in daily use (feet, miles, pounds, pints, gallons). |  |
| Understand and use measures of time and speed, and rates such as £ per hour or miles per litre |  | Measures and mensuration  1. Measure, estimate, calculate and solve problems involving time. | Measures and mensuration  1. Measure, estimate, calculate and solve problems involving time. | Measures and mensuration  1. *Understand and use measures of speed, and other compound measures such as density and pressure.* |
| Draw plane figures to given specifications and appreciate the concept of scale in geometrical drawings and maps | Construction  1. Measure and draw lines to nearest mm. |  |  |  |

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| --- | --- | --- | --- | --- |
| Understand the difference between the mean, median and mode and the purpose for which each is used | Handling data  1. Begin to find the median and mean of a set of data. | Handling data  1. For small sets of discrete data: find the mode, median and range, and the modal class for grouped data; calculate the mean. 2. Compare two simple distributions using the range and one of the mode, median or mean. | Handling data  1. Calculate statistics, recognise when it is appropriate to use the range, mean, median and mode and, for grouped data, the modal class; | Handling data  1. Compare two or more distributions and make inferences, using the shape of the distributions, the range of data and appropriate statistics. |
| Collect data, discrete and continuous, and draw, interpret and predict from graphs, diagrams, charts and tables |  | Handling data  1. Collect small sets of data from surveys and experiments. | Handling data  1. Collect data by observation, controlled experiment , or questionnaire. | Handling data  1. Gather data from specified secondary sources. 2. Have a basic understanding of correlation. |
| Have some understanding of the measurement of probability and risk | Probability  1. Use the language associated with probability to discuss events, including those with equally likely outcomes. |  |  |  |
| Use and apply mathematics to solve problemsExplain methods and justify reasoning and conclusions, using correct mathematical termsJudge the reasonableness of solutions and check them when necessaryGive results to an appropriate degree of accuracy |  | Applying mathematics  1. Explain and justify methods and conclusions, orally and in writing. | Applying mathematics  1. Use logical argument to establish the truth of a statement. | Applying mathematics  1. Give solutions to an appropriate degree of accuracy, *recognising limitations on the accuracy of data and measurements*. |